

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-15, 17-22 are rejected under 35 USC 103(a) as being unpatentable over Gusmer.(US 3782456) in view of Bochud and Rocchitelli (US 4508957).

Gusmer discloses an apparatus for heating fluid including a fluid source for supplying fluid for discharging from the reservoir; a heater means comprising a thermally conductive mass (1), CALROD type heating means (5), thermally coupled to the thermally conductive mass, imparting heat to the thermally conductive mass, a fluid first and second flow path (see figure 2, element 7 of each mass 1) formed in the mass between an inlet 9 and an outlet 11, the fluid flow path coupled in heat transfer relation to the heating means so that fluid in the fluid flow path absorbs heat from the thermally conductive mass. It is noted that the method of making the device does not distinguish the device from the prior art having the structure claimed. Further, it is noted that the method of forming a fluid heating component, does not distinguish claim to a method of heating fluid over prior art showing all the steps of heating the fluid. It is noted that the use of the term CALROD as a limitation in the claim is interpreted to mean a resistive wire embedded in electrically insulating material further surrounded by a covering or sheath. Bochud

discloses insert molding a heater in a thermally conductive body in order to “entirely surround” and “ensure upon shrinking or cooling” the “securement” of the heating element. It would have been obvious to one of ordinary skill in the art to insert mold the heater in a monolithic thermally conductive mass (1) of Gusmer in order to eliminate the need for the through bolts to hold the two separate masses (1) together, and for the reasons delineated above. It would be further obvious to secure the heater of Bochud in place so to precisely locate said heater while insert molding the heater in the mass. discloses the claimed invention except for the framework being one-piece. It would have been an obvious to one having ordinary skill in the art at the time the invention was made to make the thermal mass (1) one-piece, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. Howard v. Detroit Stove Works, 150 U.S. 164 (1893). Gusmer/Bochud do not explicitly discuss serially connected flow paths as newly claimed with the last amendment, however, Rocchitelli explicitly discloses “two channels being series connected, so that the length of the fluid heating path and therefore the quantity of fluid contained in the heating device is doubled”, (see col. 3 lines 18-20). From this explicit teaching of Rocchitelli, it would have been obvious to one of skill in the art to modify the device of Gusmer to provide series connected fluid paths separated by a heating means for the reasons given above.

Claim 16, 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gusmer in view of Bochud and Rocchitelli and common knowledge.

Gusmer/Bochud/Rocchitelli teaches the claimed invention except for an explicit teaching of connecting a ground to the heating element. It is well known in the art of fluid heating to connect a ground to the heating element for reasons of safety. Bochud teaches the benefits of insert molding, it would be obvious to one of skill to use the teachings of insert molding the heating elements to form a monolithic structures and apply the teaching to other elemental components of the heater assembly, e.g. ground terminals, temperature sensors etc..

Claims 3-4 are rejected under 35 USC 103(a) as unpatentable over Gusmer in view of Bochud and Rocchitelli and further in view of Cassidy.

Gusmer/Bochud discloses an apparatus for heating fluid including a fluid source for supplying fluid for discharging from the reservoir; a heater means comprising a thermally conductive mass (11) heating means (5), thermally coupled to the thermally conductive mass, imparting heat to the thermally conductive mass a fluid flow path formed in the mass between an inlet and an outlet, the fluid flow path coupled in heat transfer relation to the heating means so that fluid in the fluid flow path absorbs heat from the thermally conductive mass.

Gusmer/Bochud does not explicitly disclose a control means, connected to the heating means, for activating the heating means; and a thermally conductive medium coupled in heat transfer relationship between at least a portion of the control means and the thermally conductive.

Cassidy discloses *inter alia* a fluid heater comprising a fluid flow channel and a control means (104) connected to the heating means, for activating the heating means; and a thermally conductive medium (134) coupled in heat transfer relationship between at least a portion of the control means and the flow channel. It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of Cassidy, to modify the device of Gusmer to

include *inter alia* a printed circuit board for controlling the heater, and to place the PCB in contact with the thermally conductive mass via a thermally conductive medium in order to maintain the compactness of the heating device while using waste heat generated by the control components to further heat.

In reference to claims 5-7, 10-11

Gusmer/Bochud discloses an apparatus for heating fluid including a fluid source for supplying fluid for discharging from the reservoir; a heater means comprising a thermally conductive mass (1) heating means (5), thermally coupled to the thermally conductive mass, imparting heat to the thermally conductive mass a fluid flow path formed in the mass between an inlet and an outlet, the fluid flow path coupled in heat transfer relation to the heating means so that fluid in the fluid flow path absorbs heat from the thermally conductive mass.

Gusmer/Bochud does not explicitly disclose a control means, connected to the heating means, for activating the heating means; and a thermally conductive medium coupled in heat transfer relationship between at least a portion of the control means and the thermally conductive.

Roccitelli discloses an apparatus for heating fluid including a fluid source for supplying fluid for discharging from the reservoir; a heater means comprising a thermally conductive mass (1) heating means (36), thermally coupled to the thermally conductive mass, imparting heat to the thermally conductive mass a fluid flow path formed in the mass between an inlet and an outlet, the fluid flow path coupled in heat transfer relation to the heating means so that fluid in the fluid flow path absorbs heat from the thermally conductive mass, a control means (39), connected to the heating means, for activating the heating means; and a thermally conductive medium (28, 29) coupled in heat transfer relationship between at least a portion of the control

means and the thermally conductive.

***Response to Arguments***

Applicant's arguments filed 08/26/09 have been fully considered but they are not persuasive. Applicant argues that Rocchitelli fails to teach first and second flow channels series connected with heating means therebetween. The Examiner has shown where such a teaching is found in Rocchitelli. Further arguments as to the rejections of the dependant claims have not been made.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Thor S. Campbell/ whose telephone number is 571-272-4776. The examiner can normally be reached on Mon-Fri 5:30AM-2:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thor S. Campbell/  
Primary Examiner  
Art Unit 3742